



JÖNKÖPING UNIVERSITY

School of Engineering

ABSTRACTION IN PYTHON

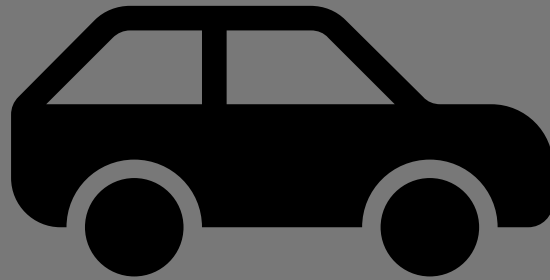
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WHAT IS ABSTRACTION?

A simplified view of how something complex works.



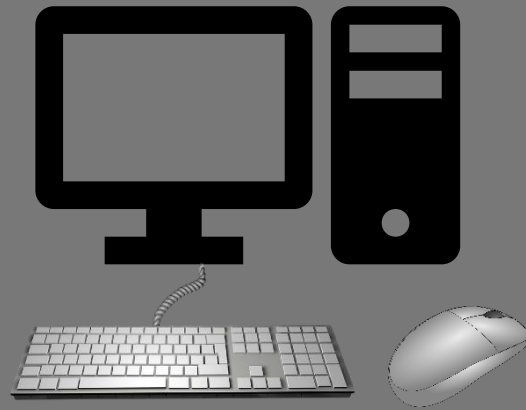
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ABSTRACTION IN PROGRAMMING

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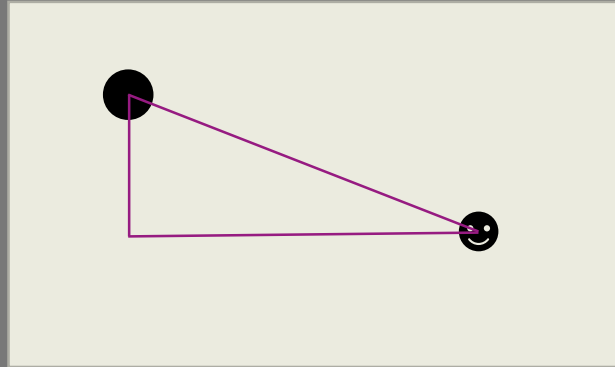
- `print()` prints to the console. How?!
- `input()` reads from the console. How?!
- `open()` opens a file. How?!

ABSTRACTION IN PROGRAMMING

Functions are abstractions.

```
def is_most_popular_name_in_sweden(name):  
    # ...  
  
if is_the_most_popular_name_in_sweden("Alice"):  
    print("Alice is the most popular name in Sweden.")  
else:  
    print("There exists more popular names than Alice in Sweden.")
```

ABSTRACTION IN PROGRAMMING



```
def get_distance(lon1, lat1, lon2, lat2):  
    return ((lon2 - lon1)**2 + (lat2 - lat1)**2)**0.5
```


ABSTRACTION IN PROGRAMMING

- The function `get_all_humans()` gives you back all the humans in the world.
- The function `get_oldest_human(human1, human2)` gives you back the oldest of `human1` and `human2`.

```
def get_all_humans():  
    # ...  
def get_oldest_human(human1, human2):  
    # ...
```

```
humans = get_all_humans()  
oldest = humans[0]  
for human in humans:  
    oldest = get_oldest_human(oldest, human)
```

ABSTRACTION IN PROGRAMMING

Functions are abstractions.

A lot of other things are abstractions as well.

- `2 + 5` evaluates to 7. How?!
- `if-else` statement conditionally executes other statements. How?!
- `for` loop iterates over a sequence of values. How?!

SUMMARY

Abstraction: Just accept that things work in some specific ways.